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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,687	02/22/2002	Faruk Mehmet Omer Eryurtlu	Eryurtlu - 2	3748

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Lucent Technologies
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EXAMINER

DIEP, NHON THANH

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,687

Applicant(s)

ERYURTLU, FARUK MEHMET
OMER

Examiner

Nhon T Diep

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-12 is/are rejected.
- 7) ☒ Claim(s) 13, 14 and 578 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article titled "Improvement of Picture Quality and Coding Efficiency Using Discrete Cosine Transform" dated June 1990, by Yuuji Izawa and Masaaki Takizawa.

Izawa et al discloses a coding method comprising the same coding video data, comprising means for receiving pixel values organised in frames each comprising a matrix of video blocks, each video block comprising a video matrix of N pixel values, and processor means arranged:

- a) to set each element in a prediction matrix to an initial prediction value;
- b) in the prediction matrix, to apply a smoothing transform to the values along the rows and then along the columns, or vice versa, to obtain interpolated values;
- c) to reset the prediction value to the interpolated value;
- d) to calculate the difference between the reset prediction values and corresponding received pixel values to produce a residual prediction matrix containing the prediction residuals. It is noted that Izawa et al does not particularly disclose the step of performing a discrete cosine transform on the prediction residuals to obtain elements of a compressed video data matrix as specified in claims 1 and 9. However,

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as admitted in the first page of the disclosed specification (lines 4-19), it is known that the DCT process is used to remove the spatial redundancy between the pixels in the same block. However, it does not consider the redundancy between the pixels from different blocks. Recently, MPEG-4 and H.263+ have added tools/options to exploit this redundancy to certain extent. At present, MPEG-4 predicts the DC coefficient (first coefficient, which is actually the block average) of the current block by using the DC coefficients of the neighbouring blocks. H.263+ does this, and in addition, it also predicts the first row or column of the DCT coefficients in some cases if there is any benefit; and existing compression algorithms exploit the fact that the DCT coefficients in the neighbouring blocks are sometimes similar to those in the current block. And therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Izawa et al by performing a discrete cosine transform on the prediction residuals to obtain elements of a compressed video data matrix as taught by the recent standards. Doing so would help to improve coding efficiency.

With regard to claims 2-4 and 10-12: It is well known that steps b) and c) are used to reduce the differences between interpolated or prediction value to the corresponding current pixel values and these steps are repeated a number of times until the errors are less than predetermined threshold. And therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to reduce the differences between the interpolated or prediction value to the corresponding

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current pixel values by using the interpolating step as many times as needed to reduce errors to an acceptance level

With regard to claim 8: It would also be obvious to use the same concept to inter frame prediction which to process pixels in a current and a previous frame to produce pixel values which are the prediction residual between the actual pixel and a motion compensated pixel. Doing so would help to improve coding efficiency.

Allowable Subject Matter

3. Claims 5-7 and 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. ***

a. de Queiroz et al (US 5,854,857) discloses a method for segmentation and background suppression in JPEG-compressed images.

b. Rosenberg (US 6,088,392) discloses a bit rate coder for differential quantization.

c. de Queiroz et al (US 6,272,251) discloses a method for fully automatic pasting of images into compressed pre-collated documents.

d. Rackett (US 6,282,322) discloses a system and method for compressing and decompressing images.

e. Schumann et al (US 6,285,774) discloses a system and methodology for tracing to a source of unauthorized copying or prerecorded material.

f. Rackett (US 6,668,095) discloses a system and method for compressing and decompressing images.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T Diep whose telephone number is 703-305-4648. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S Kelley can be reached on 703 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ND
17 Sept 2004



NHON DIEP
PRIMARY EXAMINER